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(54) **A vibrating mechanism and an apparatus of generating vibrations for a vibration compacting roller with a variable amplitude**

(57) A vibrating mechanism (4) for vibrating a vibration compacting roller with a variable amplitude includes a vibration generating shaft (10), a movable eccentric weight (6a) turnably disposed in the vibration generating shaft (10), and an eccentric weight driving unit for rotating the eccentric weight (6a) about a pivotal shaft (6) transversely extending relative to the vibration generating shaft (10). To generate vibrations for the vibration compacting roller, a vibration generating apparatus including a vibrating mechanism (4) of the foregoing type is substantially composed of an eccentricity signal generating unit, a vibration mode setting unit, an eccentric weight eccentricity quantity detecting unit, and an eccentric weight eccentricity quantity controlling unit. Alternatively, the vibration generating apparatus may substantially be composed of a forward/rearward movement lever neutral position detecting unit and an eccentric weight eccentricity quantity controlling unit. Otherwise, the vibration generating apparatus may substantially be composed of a running speed detecting unit, a running speed setting unit, a running speed comparing unit, and an eccentric weight eccentricity quantity controlling unit. The eccentric weight eccentricity quantity controlling unit is usually composed of a hydraulic cylinder (7), a hydraulic pump (47), a connect-

ing rod (18), and solenoid driven change valves (42, 44). In addition, a vibration generating method to be practiced by operating a vibration generating apparatus of the foregoing type is also provided.

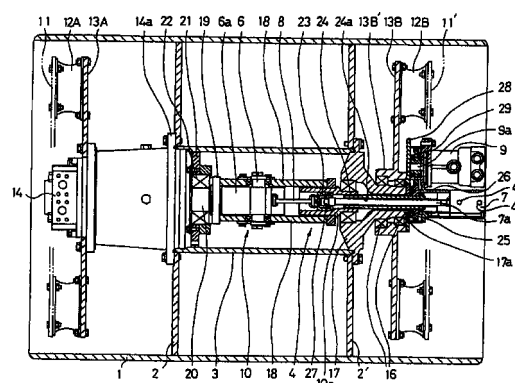


FIG. 1

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EUROPEAN SEARCH REPORT

Application Number
EP 99 12 4002

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	US 3 966 344 A (HAKER EDWIN J ET AL) 29 June 1976 (1976-06-29) * the whole document *	1,2	E01C19/28 B06B1/16
A	GB 2 250 798 A (JOHN FINLAY) 17 June 1992 (1992-06-17) * the whole document *	1,2	
D,A	FR 2 388 606 A (DYNAPAC MASKIN AB) 24 November 1978 (1978-11-24) * the whole document *	1,2	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			E01C
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		13 April 2000	Dijkstra, G
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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ON EUROPEAN PATENT APPLICATION NO.**

EP 99 12 4002

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The members are as contained in the European Patent Office EDP file on
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13-04-2000

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 3966344	A	29-06-1976	NONE		

GB 2250798	A	17-06-1992	NONE		

FR 2388606	A	24-11-1978	AR	220131 A	15-10-1980
			AT	364384 B	12-10-1981
			AT	274578 A	15-03-1981
			AU	3507478 A	18-10-1979
			BR	7802317 A	14-11-1978
			CA	1094350 A	27-01-1981
			CH	621496 A	13-02-1981
			DE	2818801 A	02-11-1978
			DK	177678 A	30-10-1978
			ES	469106 A	16-12-1980
			FI	781158 A	30-10-1978
			GB	1601554 A	28-10-1981
			IT	1161396 B	18-03-1987
			JP	53136773 A	29-11-1978
			NL	7804007 A	31-10-1978
			NO	781334 A	31-10-1978
			SE	7705001 A	30-10-1978
			US	4221499 A	09-09-1980
			ZA	7801644 A	28-03-1979
